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10/629,582	07/30/2003	Norihiro Hara		6199

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JONES DAY  
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EXAMINER

CHANNAVAJJALA, SRIRAMA T

ART UNIT PAPER NUMBER

2166

DATE MAILED: 11/30/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

10/629,582

Applicant(s)

HARA ET AL.

Examiner

Srirama Channavajjala

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 29 November 2004.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 12-16 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 12-16 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date 9/8/05.
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_.

**DETAILED ACTION**

***Response to Amendment***

1. Claims 12-16 are pending in this application.
2. Claim 12 has been amended [11/29/2004].
3. Claim 16 has been added [11/29/2004].

***Drawings***

4. The Drawings filed on 7/30/2003 are acceptable for examination purpose.

***Information Disclosure Statement***

5. The information disclosure statement filed on 9/08/2005 is in compliance with the provisions of 37 CFR 1.97, a copy is enclosed with this office action. It is however, noted that "publication number: **02-236778**" is not listed in PTO-1449.

The information disclosure statement filed on 7/30/2003 is in compliance with the provisions of 37 CFR 1.97; a copy was enclosed with previous office action.

***Claim Rejections - 35 USC § 103***

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

7. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

***8. Claims 12-14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Chow et al. [hereafter Chow], US Patent No. 5874334 in view of Knudsen et al. [hereafter Knudsen], US Patent No. 5584026.***

9. As to claim 12, Chow teaches a system which including "database processing method used in a database management system wherein a user inquiry about contents of a database made by the user is analyzed,[col 1, 18-23] an execution plan [col 8, line 16-17,fig 4-5, element 119] is generated in accordance with results of analyzing said

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user inquiry and database processing is executed in accordance with said execution plan [[see Abstract, col 1, line 47-55, fig 4-5], Chow is directed to SQL compiler for handling database execution plan, more specifically SQL statements embedded in one of the application program ie. Integrating compiler having control analyzer and query optimizer [col 7, line 66-67, col 8, line 1-2];

'cataloging information on the correspondence between a SQL user-defined function [col 3, line 36-60], Chow specifically teaches defining user-defined functions implementing in database queries using SQL statements such as 'calling parameters' [col 3, line 42-60, col 5, line 50-56], calling parameters in user defined functions as detailed in col 3, line 43-60, further it is common knowledge in the art to write embedded query using SQL statements "calling parameters" as detailed in col 3, line 42-60;

'an external routine name, determine whether to consider each of table data or to consider a set of table data in order to estimate said SQL user-defined function [col 4, line 51-67, col 5, line 1-5, col 6, line 63-67, col 7, line 1-3], Chow teaches triggers used in various control statements that may be used both external, and internal routine because triggers are invoked with specific trigger conditions as detailed in col 4, line 51-67, further it is also noted that Chow also teaches the SQL statements are embedded into "Create trigger procedure" [see col 4, line 51-67, col 5, line 1-5]

'external routine name being designated for implementing said SQL user-defined function, said external routine being implemented as an executable code' [col 14, line 26-37, col 15, line 24-43], Chow specifically teaches various control statements that are procedural in SQL3, further query compiler is used to generate executable plan; it is

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also noted that Chow teaches executable code for example see transforming set statement as detailed in col 15, line 24-43;

'determining either a procedure for executing said related external routine for each piece of desired data composing said database or a procedure for acquiring a set of results by execution of said related external routine' [col 32, line 23-67, col 34, line 36-45], Chow teaches various procedure statements related to query, particularly data structure as detailed in col 32, line 23-67 using procedural language "C" external routines;

'storing the determined result in an execution plan in accordance with said cataloged information when analyzing the inquiry containing said SQL user-defined function' [col 10, line 19-31], Chow specifically suggests SQL3 control statements compiled into execution plan or query graph model as detailed in col 10, line 19-31.

It is however, noted that Chow does not teach 'a format of execution results'. On the other hand, Knudsen et al. disclosed 'a format of execution results' [col 31, line 10-40, table 34-35], Knudsen teaches format of execution results as shown in fig 34-35.

It would have been obvious to one of the ordinary skill in the art at the time of applicant's invention to incorporate the teachings of Knudsen et al. into program for extending a sql compiler for handling control statements packaged with sql query statements of Chow et al. because both Chow, Knudsen are directed to query

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processing, more specifically Chow is directed to query extractor, query execution plan, more specifically creating user defined functions, stored procedures and triggers related to database access operations [col 3-4], while Knudsen is directed to database and access method, more specifically access method maintains indexes into the tables stored in the access structure, utilizing query processors [see fig 1], further Knudsen also teaches high level programming interface defining data types, rules , conditions comprising logical expressions and various routines to execute the query statements [ col 8] and both are same field of data base query.

one of the ordinary skill in the art at the time of applicant's invention to incorporate the teachings of Knudsen et al. into program for extending a sql compiler for handling control statements packaged with sql query statements of Chow et al. because that would have allowed users of Chow not only execute the query statements, but also incorporating formatting commands in embedded sql statements in specific format of execution results bringing the advantages of great mobility of programs from system to system, and eliminates many problems associated with maintaining a consistent view of a program which may be operated by a number of users as suggested by Knudsen [col 2, line 64-67].

10. As to claim 13, Chow disclosed functional evaluation in which an index is not used and the indexed evaluation in which an index is used' [col 44, line 52-59]. On the

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other hand, Knudsen disclosed 'format of execution results corresponds to the function evaluation' [col 35, line 20-21].

11. As to claim 14, Chow disclosed 'calling parameters contain SQL data types' [col 6, line 53-66].

### ***Claim Rejections - 35 USC § 102***

12. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371(c) of this title before the invention thereof by the applicant for patent.

The changes made to 35 U.S.C. 102(e) by the American Inventors Protection Act of 1999 (AIPA) and the Intellectual Property and High Technology Technical Amendments Act of 2002 do not apply when the reference is a U.S. patent resulting directly or indirectly from an international application filed before November 29, 2000. Therefore, the prior art date of the reference is determined under 35 U.S.C. 102(e) prior to the amendment by the AIPA (pre-AIPA 35 U.S.C. 102(e)).

***13. Claims 15-16 are rejected under 35 U.S.C. 102(e) as being anticipated by Chow et al. [hereafter Chow], US Patent No. 5875334.***

14. As to claim 15, Chow teaches a system which including 'database processing method used in a database management system wherein a user inquiry about contents



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of a database made by the user is analyzed,[col 1, 18-23] an execution plan [col 8, line 16-17,fig 4-5, element 119] is generated in accordance with results of analyzing said user inquiry and database processing is executed in accordance with said execution plan [[see Abstract, col 1, line 47-55, fig 4-5], Chow is directed to SQL compiler for handling database execution plan, more specifically SQL statements embedded in one of the application program ie. Integrating compiler having control analyzer and query optimizer [col 7, line 66-67, col 8, line 1-2];

'cataloging information on calling triggers of external routines [col 4, line 45-67], 'each implementing an operation of a user-defined data type in said database management system when the user defines said user-defined data type' [col 3, line 36-67], Chow teaches creating triggers in calling various control statements, specifically trigger conditions as detailed in col 4, line 52-67, further Chow also specifically teaches user -defined functions in control statements as detailed in col 3, line 36-67;

'adding information of an external routine to the called on relevant module calling triggers obtained from said information on module calling triggers of said external routine' [col 18, line 18-24, line 30-39] to said execution plan when said user inquiry made by the user is analyzed and said execution plan is generated' [fig 2-5, col 4, line 45-67, col 5, line 1-15, col 8, line 10-19], Chow teaches not only creating triggers, and executing plan for example as shown in fig 2-5,col 8, line 10-19, but also teaches user-defined functions are used in executing various procedural statements both external and internal routines;

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'executing said external routine on said relevant module calling triggers specified in said information on external routine added to said execution plan when database processing is executed in accordance with said execution plan' [col 23, line 45-67, col 27, line 18-22], Chow specifically teaches optimization that including query rewrite, and generating code as detailed in col 23, line 45-67.

15. As to claim 16, Chow disclosed 'calling triggers include the timing of commit processing' [col 30, line 53-64].

***Response to Arguments***

16. Applicant's arguments filed on 11/29/2004 with respect to claims 12-16 have been fully considered and for examiner's response, see discussion below:

a) At page 6, claim 12, applicant argues that 'format of execution results is used to determine whether to consider each of table data or to consider a set of table data in order to estimate the SQL user-defined function'.

As to the above limitation, firstly, Chow is directed to compiling SQL control statements, more specifically analyzing control statements and query optimizer and compiling the procedural control statements [see abstract], further Chow also teaches control statements contains user-defined functions as detailed in col 3, line 36-67], it is however noted that Chow does not teach 'a format of execution results'. On the other hand, Knudsen et al. disclosed 'a format of execution results' [col 31, line 10-40, table 34-35], Knudsen teaches format of execution results as shown in fig 34-35.

It would have been obvious to one of the ordinary skill in the art at the time of applicant's invention to incorporate the teachings of Knudsen et al. into program for extending a sql compiler for handling control statements packaged with sql query statements of Chow et al. because both Chow, Knudsen are directed to query processing, more specifically Chow is directed to query extractor, query execution plan,

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more specifically creating user defined functions, stored procedures and triggers related to database access operations [col 3-4], while Knudsen is directed to database and access method, more specifically access method maintains indexes into the tables stored in the access structure, utilizing query processors [see fig 1], further Knudsen also teaches high level programming interface defining data types, rules , conditions comprising logical expressions and various routines to execute the query statements [ col 8] and both are same field of data base query.

one of the ordinary skill in the art at the time of applicant's invention to incorporate the teachings of Knudsen et al. into program for extending a sql compiler for handling control statements packaged with sql query statements of Chow et al. because that would have allowed users of Chow not only execute the query statements, but also incorporating formatting commands in embedded sql statements in specific format of execution results bringing the advantages of great mobility of programs from system to system, and eliminates many problems associated with maintaining a consistent view of a program which may be operated by a number of users as suggested by Knudsen [col 2, line 64-67].

b) At page 6, claim 12, applicant argues that Chow et al does not disclosed 'determining either a procedure for executing the related external routine for each piece of desired data composing the database or a procedure for acquiring a set of results by execution of the related external routine in accordance with the information on the format of execution results.

As to the above argument [b], As best understood by the examiner Chow specifically teaches various procedural statements related to query, that including executing routines particularly using "C" procedural language that supports external routines [col 32, line 23-67, col 34, line 36-45]. On the other hand, Knudsen et al. disclosed 'a format of execution results' [col 31, line 10-40, table 34-35], Knudsen teaches format of execution results as shown in fig 34-35.

c) At page 6-7, claim 15, applicant argues that Chow et al. does not teach 'executing the external routine on the relevant module calling triggers specified in the information on the external routine added to the execution plan when data base processing is executed in accordance with the execution plan.

As to the argument [c], Chow et al teaches control statements supported by SQL3, also teaches these control statements may be defined "user-defined functions" [col 3, line 36-40], further Chow disclosed triggering procedure that is invoked in a specified trigger condition in control statements [col 4, line 45-49]. Chow et al. also teaches query optimization, code generation that including execution plan as detailed in fig 2-5, col 8, line 10-19, therefore, query specific processing that including optimization, code generation is added to the procedure

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d) At page 7, claim 15, applicant argues that Chow et al. does not teach any calling triggers of external routines. The triggers disclosed by Chow et al are merely ordinary SQL2 features.

As to the above argument [d], as best understood by the examiner Chow et al specifically teaches SQL query including plan generation, optimization and code generation [col 8, line 16-19], further it is noted that Chow also teaches both SQL 2 and SQL3 especially control statements [col 10, line 12-18], also Chow disclosed SQL3 control statements supports both user-defined functions and "trigger" [col 3, line 23-27, line 36-67, col 4, line 45-67], therefore, Chow teaches not only SQL3 supports creating various control statements to execute both external and internal routines but also advantages of SQL3 control statements [col 3, line 23-26].

**THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the mailing date of this final action.

***Conclusion***

**The prior art made of record**

- a. US Patent. No. 5875334
- b. US Patent No. 5584026

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Any inquiry concerning this communication or earlier communications from the examiner should be directed to Srirama Channavajjala whose telephone number is 571-272-4108. The examiner can normally be reached on Monday-Friday from 8:00 AM to 5:30 PM Eastern Time.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Alam, Hosain, T, can be reached on (571) 272-3978. The fax phone numbers for the organization where the application or proceeding is assigned is 571-273-8300. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free)

SC  
*Patent Examiner.*  
November 9, 2005

  
SRIRAMA CHANNAVAJJALA  
PRIMARY EXAMINER